

EPA is providing the LWG with more specific direction on Remedial Alternatives and Remedial Action Levels (RALs) to facilitate resolution of EPA's July 15, 2011 comments on the FS Key Elements Check-in meeting. The LWG raised concerns with adding Alternative G to the draft FS, and development of time-zero RALs curves for additional contaminants. EPA believes that five (5) alternatives in addition to the No Action Alternative would provide an adequate range in remedial options provided the appropriate RALs are selected and based on the LWG proposal to have two (2) analysis for each alternative; one being removal (dredging) focus and the other being in-situ (capping) focus. Thus, EPA is redacting the requirement for an Alternative G from our July 15, 2011 letter provided that the LWG agrees to use the RALs and Alternatives presented in Table 1 in development of the draft Feasibility Study (FS).

Table 1. Remedial Alternatives and Remedial Action Levels to be used to develop the Draft Portland Harbor Feasibility Study

Contaminant	Units	Alternative B	Alternative C	Alternative D	Alternative E	Alternative F
Total PCBs	ug/kg	1,000	500	200	100	50
Benzo(a)pyrene Eq	ug/kg	20000	8000	4000	1500	1000
Total Chlordane	ug/kg					196
Sum DDx	ug/kg	130	50	20	10	5
2,3,4,7,8-PCDF	ng/kg	50	20	10	5	3
MQ		0.7	0.7	0.7	0.7	0.7
Benthic		L2/L3	L2/L3	L2/L3	L2/L3	L2/L3

	Contaminant or RAL presented by LWG and EPA agrees
	Contaminant or RAL presented by LWG and EPA provides alternative number
	New Alternative, Contaminant or RAL provided by EPA

Basis for Contaminant Selection

The Human Health risk drivers for the Portland Harbor Superfund Site are Total PCBs, carcinogenic PAHs (cPAHs), dioxins/furans, and DDx. Since correlations can be made between benzo(a)pyrene and cPAHs, and 2,3,4,7,8-PCDF and dioxin/furans these chemicals may be used as surrogates in the draft FS. Thus, these contaminants must have RALs developed for Alternatives Analysis in the draft FS. Secondary contaminants posing unacceptable risk for human health are antimony, arsenic, cadmium, mercury, hexachlorobenzene, bis(2-ethylhexyl)phthalate, dieldrin, heptachlor, heptachlor epoxide, MCP, and total chlordanes. These secondary contaminants must be evaluated in the draft FS to ensure that they are being addressed by the remedial alternatives. EPA may require additional analysis of these contaminants in the final FS, if necessary.

EPA has not had an opportunity to review the revised draft baseline Ecological Risk Assessment and may have additional contaminants that may need analysis in the final FS. EPA is not sure of the Mean Quotient (MQ) proposal by the LWG to address benthic risk so will agree that the analysis may be presented by the LWG in the draft FS, but the Level 2 and Level 3 benthic risks must also be used in developing Sediment Management Areas (SMAs).

Basis for RAL Values

Total PCBs

After further review of the site-wide RAL T=0 curve presented by the LWG (see Exhibit 1), EPA has noted that there is approximately a 10 ppb decrease in the site-wide SWAC between the 1,000 ppb, 500 ppb, 200 ppb, 100 ppb, and 50 ppb RALs. This gives a good constant decrease in concentration between alternatives. The 750 ppb RAL proposed by the LWG for Alternative C does not provide much different analysis than the 1,000 ppb RAL in regards to risk reduction; thus, this value would not provide much decrease in concentration (site-wide SWAC) or increase in volume as an alternative analysis.

Benzo(a)pyrene Eq

EPA has further reviewed RALs developed for benzo(a)pyrene (BaP). The values presented by the LWG were appropriate for the less “actionable” (i.e., dredging and capping), they did not encompass enough range through the “less reliance on MNR” alternatives. In order to get enough spread in the RALs between the point of maximum incremental reduction and the point of minimum change in concentration, EPA has determined that the 15,000 ppb RAL proposed by the LWG does not provide much different analysis than the 20,000 ppb RAL in regards to risk reduction or mass reduction.

Sum DDx

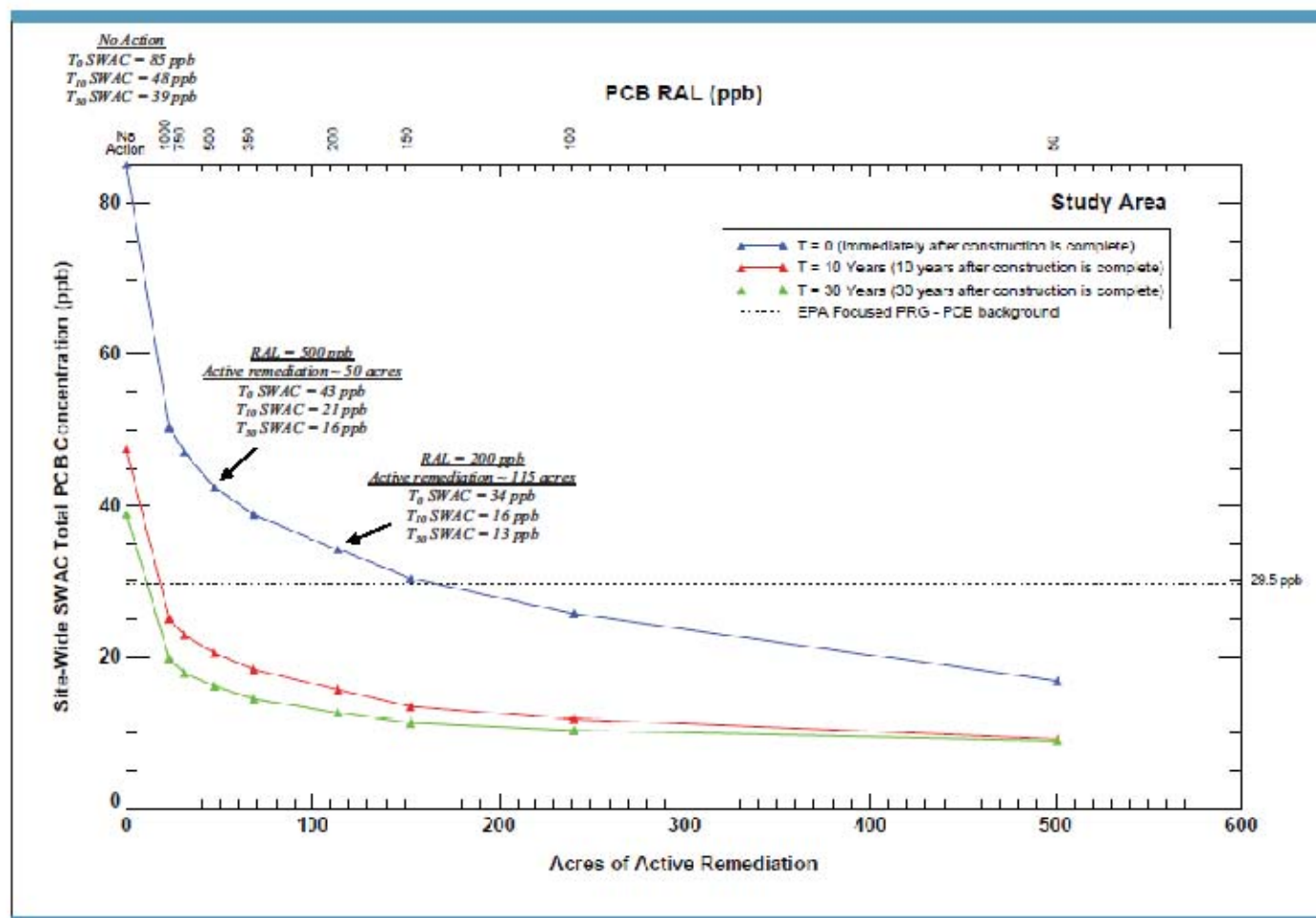
EPA believes that a RAL based on total DDx is a more appropriate measure of risk than the sum of DDE isomers alone. Total DDx accounts for all related DDT products, including the degradation products DDD and DDE. Since all forms are hydrophobic, toxic, and persistent in the environment, EPA believes that it is appropriate to evaluate alternatives on total DDx compounds at the site. DDT is initially metabolized in humans to either DDE or DDD. For toxicity other than direct neurological effects, metabolism of DDT can be either a detoxification or an activation. Thus, evaluating DDE alone may underestimate the toxic dose and potential for adverse effects, and evaluating cleanup based on total DDx ensures toxicity is adequately evaluated and reduced throughout the site. Further, the draft RI report presents DDx (see Exhibit 6), not DDE, so the only way to link the RI and the FS is to use consistent contaminants.

Since the River sediments between RM 6.5 and 7.5 contain the most significant source of DDx at the site, RALs were developed based on a one (1) river mile surface weighted average concentration (SWAC) of this river mile.

2,3,4,7,8-PCDF

Since dioxin/furans are the second highest risk driver chemical for the site, EPA believes that there should be RALs developed for this contaminant. RALs for 2,3,4,7,8-PCDF were developed based on a SWAC of one (1) river mile using the data between RM 6.5 and 7.5, partially due to the source and also due to data density.

Exhibit 1



DO NOT QUOTE OR CITE: This document is currently under review by USEPA and its federal, state, and tribal partners and is subject to change in whole or in part.

Figure 1
 Comparison of Total PCBs Site-wide SWAC to Potential RALs/Acres Remediated at Three Points in Time Following Construction Completion



Exhibit 2

